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TITLE

STATUS OF BARK BEETLE INFESTATION ON THE GALLATIN NATIONAL FOREST 1938

by
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Assistant Entomologist

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Forest Insect Laboratory
Coeur d'Alene, Idaho
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INTRODUCTION

From 1931 to 1934 detailed surveys were made of the mountain pine beetle infestation on the Gallatin National Forest as part of a program to study the progress of the large Beaverhead outbreak which was moving south and east and threatening the vast lodgepole pine stands of the Yellowstone Park and adjoining forests. Fortunately natural control factors removed the impetus which this outbreak had been gaining when a drastic reduction occurred in 1932-33 on the Beaverhead Forest. This reduction was not duplicated on the Gallatin Forest, but the increase was a slight one. In 1934 the increase on the latter forest was nearly 100 percent of the previous year's total on areas surveyed both years. Since 1934 no detailed surveys of the Gallatin Forest have been conducted, but a check strip and scattered survey strips have served to indicate the development of the outbreak.

LOSSES FROM THE MOUNTAIN PINE BEETLE SINCE 1934

The check strip on Squaw Creek and general observations yielded the only information concerning the outbreak in 1935. Only ten trees were killed in the 36 acres of the strip, an average infestation of about .28 tree per acre. In 1936 the number attacked increased to 21, or .58 tree per acre. Up to but not including 1935, 21 lodgepole pine and 64 whitebark pine had been killed on the strip. Secondary bark beetles had killed only one tree, an eight-inch lodgepole pine.

Inspection of the data from the very extensive surveys made in 1937 and 1938 shows that in lodgepole pine the infestation was general but light over the entire forest. The average number of attacked trees per acre for the forest as a whole and including whitebark pine, Douglas fir, and Engelmann spruce as well as lodgepole pine, is shown in the following tabulation.

Barkbeetle Activity on the Gallatin Forest
1937 and 1938

Attacked trees per acre	Mountain pine beetle in Lp. pine	Mountain pine beetle in Wb. pine	Douglas Fir beetle in D. fir	Engelmann spruce beetle in E. spruce	Secondary barkbeetles in Lp. and Wb. pine
1937	.06	.08	.03	.38	.01
1938	.07	.36	.01	.02	.04

From the preceding figures it is seen that no significant change in the outbreak in lodgepole pine is apparent but a decided increase is noted in whitebark pine. Because of the persistent losses which have occurred to this species in recent years, the loss of all mature whitebark pine within a comparatively short period seems altogether possible if the present increase continues.

Concentration of infestation in whitebark pine was noted on the Jack Creek area. That general area was also the scene of an aggressive infestation in lodgepole pine a few years ago, but the outbreak is now comparatively light. However, on this area, in both lodgepole and whitebark pine, it is the most aggressive of any noted in 1938, judging from the smaller ratio of unsuccessfully attacked trees than on the other areas. In lodgepole pine the nonaggressive character of the infestation over the

the forest as a whole is noted from the fact that over 60 percent of the lodgepole pine attacked were green sided or pitched out. In whitebark pine only about 25 percent of the trees were green sided or had pitched out the attack.

Based on a small amount of data the outbreak of the Douglas fir beetle in Douglas fir is apparently decreasing, but from general observations the writer believes it is as heavy as in 1937 and possibly even heavier. In addition certain areas are showing considerable concentration of infestation. One such area is inside the Yellowstone Park boundary and across the river from the Gallatin Ranger Station. This limited area has shown a heavy concentration of activity for a couple of years. On Squaw Creek, where severe defoliation due to frost and mechanical injury from road construction have weakened many trees, a heavy outbreak is present. On Timber Butte on this drainage two acres of strip showed 21 attacked trees, which would mean a total of about 100 heavily infested trees on that limited area. Many weakened trees beside the road right-of-way are infested, but there are also groups of from 3 to 20 trees scattered elsewhere over that large drainage. On the slopes bordering the main river there are many scattered individual and small groups of infested trees.

The Engelmann spruce beetle infestation is still active on the forest, but its status is not known due to the small amount of data secured from that timber type. The few infested trees noted, however, did not seem to have an aggressive brood if we may judge from the large ratio of lightly

attacked trees. Limited time prevented examining many of the areas surveyed in 1937 to determine the boundaries and status of the outbreak of this insect.

CONCLUSIONS

In general the infestation in lodgepole pine by the mountain pine beetle seems so light as to constitute no menace to the stands at present. Conditions in the whitebark pine are not so favorable, with a decided increase being evident in 1938. The stands of that timber species are steadily being depleted and the prospects are that practically all of the mature trees will be dead within a comparatively short period of time if present losses and increases continue. Losses in whitebark pine have been general over the entire forest and heavy in some areas. While the loss of this timber from an aesthetic and watershed protection standpoint would be regrettable, if our present surmise that mountain pine beetle outbreaks may "boil over" into adjoining lodgepole pine stands when they reach a certain status is correct, the elimination of mature whitebark pine might remove a menace to lodgepole pine stands.

The Douglas fir and Engelmann spruce beetles are causing appreciable timber losses in some areas, but destruction of these species in the highly scenic areas of the Gallatin Canyon constitute a decided aesthetic loss. This is especially true of the trees along the banks of the river which often serve as a most pleasing setting for vistas of water and mountains.

It is felt that development of the infestations along highly scenic routes should be watched in order to be advised of any serious threat to the timber that adds so much to their value.